Dometic®

RECORD THIS UNIT INFORMATION FOR FUTURE REFERENCE:
Model Number _____
Serial Number _____
Date Purchased _____

MODEL B3200
Roof-Top Air Conditioner
used with
Mechanical Air Distribution Box

SERVICE OFFICE
Dometic Corporation
For Information
Contact:
www.dometic.com

⚠ WARNING

This manual must be read and understood before installation, adjustment, service, or maintenance is performed. This unit must be installed by a qualified service technician. Modification of this product can be extremely hazardous and could result in personal injury or property damage.

INSTALLATION & OPERATING INSTRUCTIONS

TYPE
3253.332
Air Conditioner

REVISION:
Form No. 3310070.010 4/06
(Replaces 3310070.000)
©2006 Dometic Corporation
LaGrange, IN 46761

Important: These Instructions must stay with unit.
Owner read carefully.

SAFETY INSTRUCTIONS

This manual has safety information and instructions to help users eliminate or reduce the risk of accidents and injuries.

RECOGNIZE SAFETY INFORMATION

This is the safety-alert symbol. When you see this symbol in this manual, be alert to the potential for personal injury.

Follow recommended precautions and safe operating instructions.

UNDERSTAND SIGNAL WORDS

A signal word , **WARNING** OR **CAUTION** is used with the safety-alert symbol. They give the level of risk for potential injury.

⚠ WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

⚠ CAUTION indicates a potentially hazardous situation which, if not avoided may result in minor or moderate injury.

CAUTION used without the safety alert symbol indicates, a potentially hazardous situation which, if not avoided may result in property damage.

Read and follow all safety information and instructions.

GENERAL INSTRUCTIONS

A. Product features or specifications as described or illustrated are subject to change without notice.
The following are the basic requirements:

1. Installation opening. Cut through the roof and ceiling.
2. Additional Wiring.
   220-240 VAC, 50 Hz. 10 Amp.
3. Power with the air conditioner on must be above 209 VAC and the frequency must be at 50 HZ. at all times.

B. This Air Conditioner Is Designed For:

1. Installation on a recreational vehicle during the time the vehicle is manufactured.
2. Mounting on the roof of a recreational vehicle.
3. Roof construction with rafters/joists on minimum of 40.6 cm centers.
4. Minimum of 5 cm and maximum of 10 cm distance between roof to ceiling of recreational vehicle. Alternate installation methods will allow for roofs more than 10 cm thick.

C. The ability of the air conditioner to maintain the desired inside temperature depends on the heat gain of the Caravan.
Some preventative measures taken by the occupants of the Caravan can reduce the heat gain and improve the performance of the air conditioner. During extremely high outdoor temperatures, the heat gain of the vehicle may be reduced by:

1. Parking the Caravan in a shaded area
2. Using window shades (blinds and/or curtains)
3. Keeping windows and doors shut or minimizing usage.
4. Avoiding the use of heat producing appliances

Operation on High Fan/Cooling mode will give optimum or maximum efficiency in high humidity or high outside temperatures.

Starting the air conditioner early in the morning and giving it a "head start" on the expected high outdoor ambient will greatly improve its ability to maintain the desired indoor temperature.

For a more permanent solution to high heat gain, accessories like Dometic A&E outdoor patio and window awnings will reduce heat gain by removing the direct sun. They also add a nice area to enjoy company during the cool of the evening.

D. Condensation

Note: The manufacturer of this air conditioner will not be responsible for damage caused by condensed moisture on ceilings or other surfaces. Air contains moisture and this moisture tends to condense on cold surfaces. When air enters the Caravan, condensed moisture may appear on the ceiling, windows, metal parts, etc. The air conditioner removes this moisture from the air during normal operation. Keeping doors and windows closed when this air conditioner is in operation will minimize condensed moisture on cold surfaces.

SPECIFICATIONS

Type	3253.332 Air Cond	Electric Heater
Nominal Capacity (KW)	3.2	1.6
Electrical Rating	220 - 240 VAC 50 Hz. 1Ph.	
FL Amps (Comp/Motor)	5.2/1.6	6.3/1.6
LR Amps (Comp/Motor)	26/4.4	--/4.4
Power (KW)	1.3	1.9
Min. Wire Size	Up to 8 meters, use 1.5mm^2 Copper	
Circuit Protection	10 Amp Time Delay Fuse or 10 Amp Circuit Breaker	
Generator Size 1 Unit 2 Units	 3.5 KW 5.0 KW	

The Manufacturer gives only general guidelines for Generator requirements. These Generator requirements come from experiences consumers have with our equipment in field applications. When sizing Generators, the total electrical power consumption of the caravan must be considered. Keep in mind that Generators lose power because of altitude increase above sea level, high outside temperatures and lack of maintenance.

INSTALLATION INSTRUCTIONS

A. Precautions

⚠ WARNING

Improper installation; may damage equipment; could endanger life; cause serious injury and/or property damage.

1. Read Installation and Operating Instructions carefully before attempting to start your air conditioner installation.
2. Dometic Corporation will not be liable for any damages or injury incurred due to failure in following these instructions.
3. The equipment shall be installed in accordance with nation wiring regulation per **ICE 335-2-40, 7.12.1**. Installation must comply with applicable codes or regulations.
4. **DO NOT** add any devices or accessories to this air conditioner except those specifically authorized by Dometic.
5. This equipment must be serviced by qualified personnel and some localities require these people to be licensed.

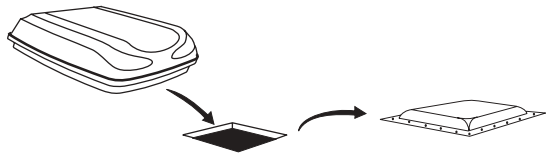
B. CHOOSING PROPER LOCATION FOR THE AIR CONDITIONER

This air conditioner is specifically designed for installation on the roof of a recreational vehicle (Caravan). When determining your cooling requirements, the following should be considered:

- Size of Caravan;
- Window area (increases heat gain);
- Amount of insulation in walls and roof;
- Geographical location where the Caravan will be used;
- Personal comfort level required.

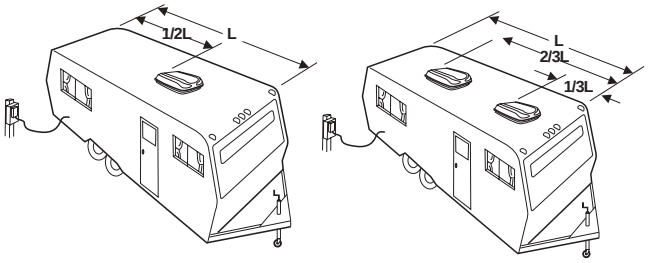
1. Normal Location-The air conditioner is designed to fit over an existing roof vent opening. When the vent is removed, it normally creates a 35.5 cm x 35.5 cm opening. See FIG. 1.

FIG. 1



2. Other Locations-When no roof vent is available or another location is desired, the following is recommended:
   a. For one unit installation :
      The air conditioner should be mounted slightly forward of the center (front to back) and centered from side to side on the Caravan. See FIG. 2.

FIG. 2

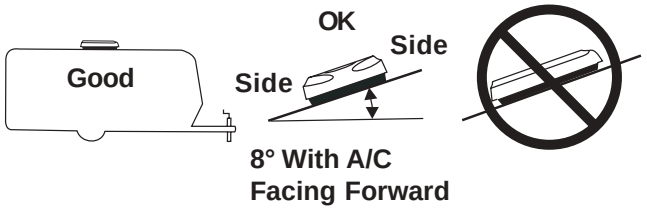


L = Length

   b. For two unit installations:
      Install one air conditioner 1/3 and the other 2/3's back from the front of the caravan and centered from side to side. See FIG. 2.

3. Check the location acceptability before beginning the installation.
   a. If possible mount the air conditioner in a section of the roof which is both flat and level when the caravan is parked on a level surface; otherwise, a sideways pitch or forward pitch up to 8° can be tolerated, but a backward pitch can **never** be accepted. See FIG. 3.

FIG. 3



   b. Check on the roof to insure no obstructions are in the area where the air conditioner will be installed. See FIG. 4 & 5.

FIG. 4

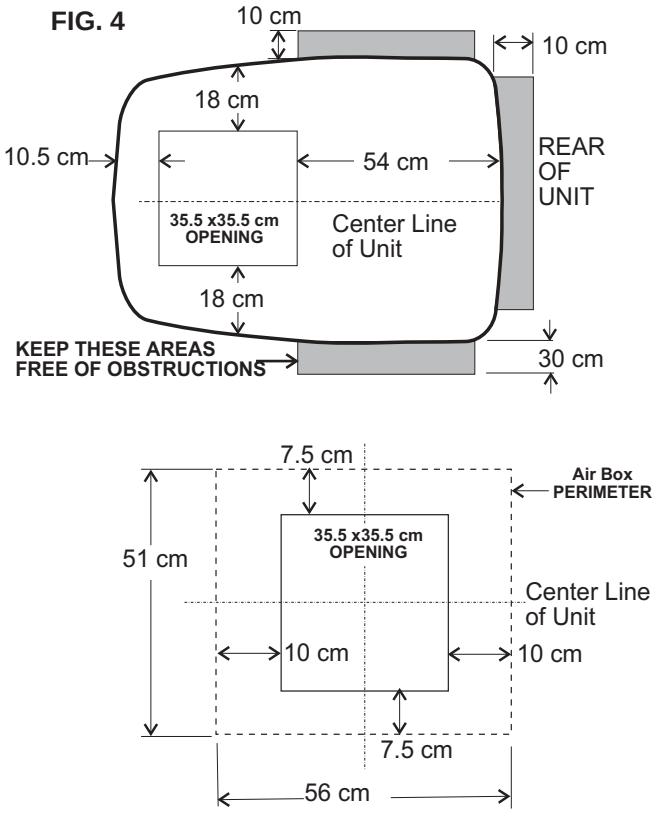
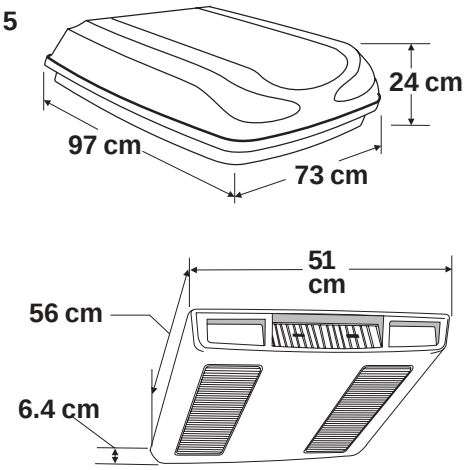


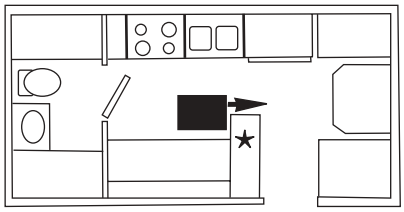
FIG. 5



   c. Check inside the Caravan for air box obstructions (i.e. door openings, room dividers, curtains, ceiling fixtures, etc.) See FIG. 6.

Roof /Return Air Grill - Cross Section

FIG. 6



★ Cabinet - Prohibits Use

   d. The roof must be designed to support 60 Kg. when the Caravan is in motion. Normally a 90 Kg. static load design will meet this requirement. See FIG. 7.

CAUTION

It is the responsibility of the installer of this air conditioner system to ensure structural integrity of the Caravan roof. Never create a low spot on the roof where water will collect. Water standing around the air conditioner may leak into the interior causing damage to the product and the Caravan.

C. Roof Preparation

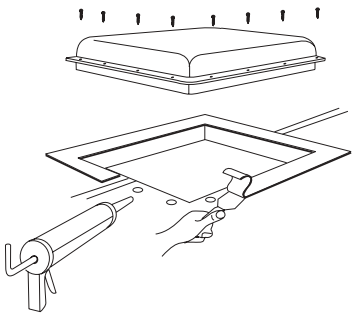
1. Opening Requirements - Before preparing the ceiling opening, read all of the following instructions before beginning the installation.
   If a roof vent opening will not be used a 35.5 cm x 35.5 cm opening must be cut through the roof and ceiling of the RV. This opening must be located between the roof reinforcing members.

⚠ WARNING

There may be electrical wiring between the roof and the ceiling. Disconnect 220-240 volt AC power cord and the positive (+) 12 volt DC terminal at the supply battery. Failure to follow this instruction may create a shock hazard causing death or severe personal injury.

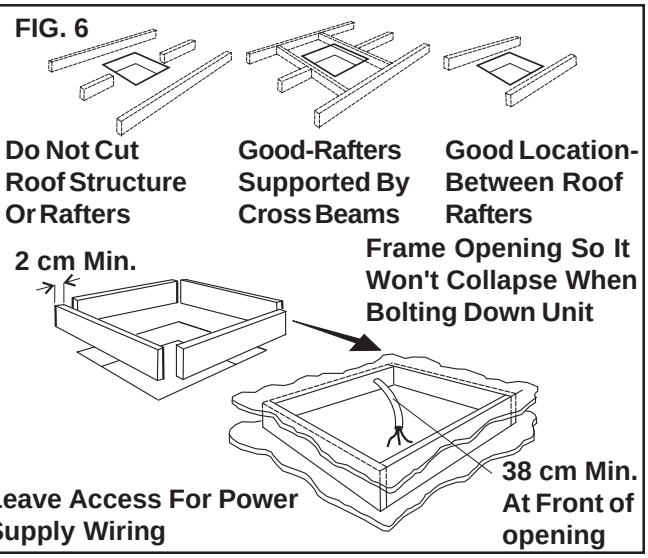
   The 35.5 cm x 35.5 cm opening is part of the return air system of the Air Conditioner and must be finished in accordance with national and local codes.
2. Roof Vent Removal
   a. Unscrew and remove the roof vent.
   b. Remove all caulking compound around opening.
   c. Seal all screw holes and seams where the roof gasket is located. Use a good grade of all weather sealant. See FIG. 5.

FIG. 5



   d. If the opening exceeds 36.5 cm x 36.5 cm, it will be necessary to re-size the opening to 35.5 cm x 35.5 cm.
   e. If the opening is less than 35.5 cm x 35.5 cm, it must be enlarged.
3. New Opening- (Installation Other Than Vent Opening)
   a. Mark a 35.5 cm x 35.5 cm square on the roof and carefully cut the opening.
   b. Using the roof opening as a guide, cut the matching hole in the ceiling.
   c. The opening created must be framed to provide adequate support and prevent air from being drawn from the roof cavity. Lumber 2 cm or more in thickness must be used. Remember to provide an entrance hole for power supplies at the front of the opening. See FIG. 6.

FIG. 6


Do Not Cut Roof Structure Or Rafters
Good-Rafters Supported By Cross Beams
Good Location-Between Roof Rafters
2 cm Min.
Frame Opening So It Won't Collapse When Bolting Down Unit
Leave Access For Power Supply Wiring
38 cm Min. At Front of opening

CAUTION

It is the responsibility of the installer of this air conditioner system to ensure structural integrity of the Caravan roof. Never create a low spot on the roof where water will collect. Water standing around the air conditioner may leak into the interior causing damage to the product and the Caravan.

D. Wiring Requirements

1. 220-240 VAC Supply Line
   Route a copper 1.5 mm^2, with ground, 220-240 VAC supply line from the time delay fuse or circuit breaker box to the roof opening.
   a. This supply line must be located in the front portion of the 35.5 cm x 35.5 cm opening.
   b. The power MUST be on a separate 10 Amp time delay fuse or 10 Amp circuit breaker.
   c. Make sure that at least 38 cm of supply wire extends into the roof opening. This ensures easy connection at the junction box.
   d. Wiring must comply with all National and Local Wiring Codes.
   e. Use a steel sleeve and a grommet or equivalent methods to protect the wire where it passes into the opening.

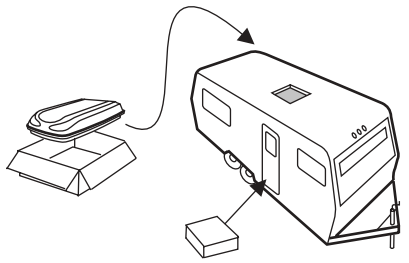
E. Placing Air Conditioner On The Roof

⚠ CAUTION

This unit weighs approximately 45 Kg. To prevent back injury, use a mechanical hoist to place Air Conditioner on roof.

1. Remove the air conditioner from the carton and discard carton. See FIG. 7.

FIG. 7

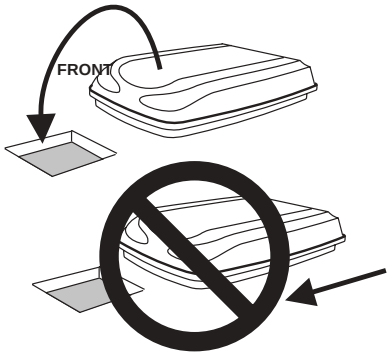


2. Place the air conditioner on the roof.
3. Lift and place the unit over the prepared opening using the gasket on the unit as a guide. See FIG. 8.

CAUTION

Do not slide the unit. This may damage the roof gasket attached to the bottom and may create a leaky installation.

FIG. 8



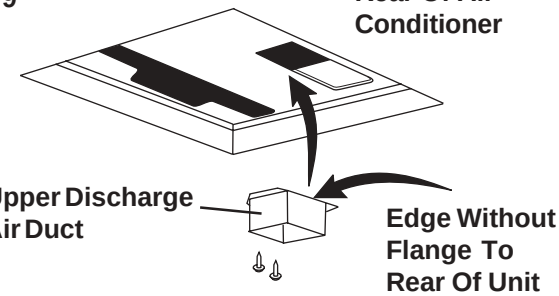
4. Place the Mechanical Air Distribution Box Kit inside the Caravan. This box contains mounting hardware for the air conditioner and will be used inside the Caravan. See FIG. 7.

This completes the outside work. Minor adjustments can be done from the inside of the Caravan if required.

F. Installing The Air Conditioner

1. Remove air box and mounting hardware from carton. The upper duct is shipped inside the lower duct which is part of the ceiling template.
2. Check for correct alignment and adjust the unit as necessary (Roof Gasket centers over 35.5 cm opening).
3. Remove upper duct from ceiling template and locate it over blower discharge. See FIG. 9.

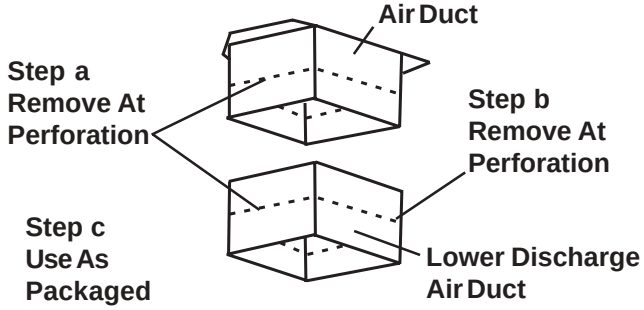
FIG. 9



Note: Edge without flange installs toward REAR of opening.

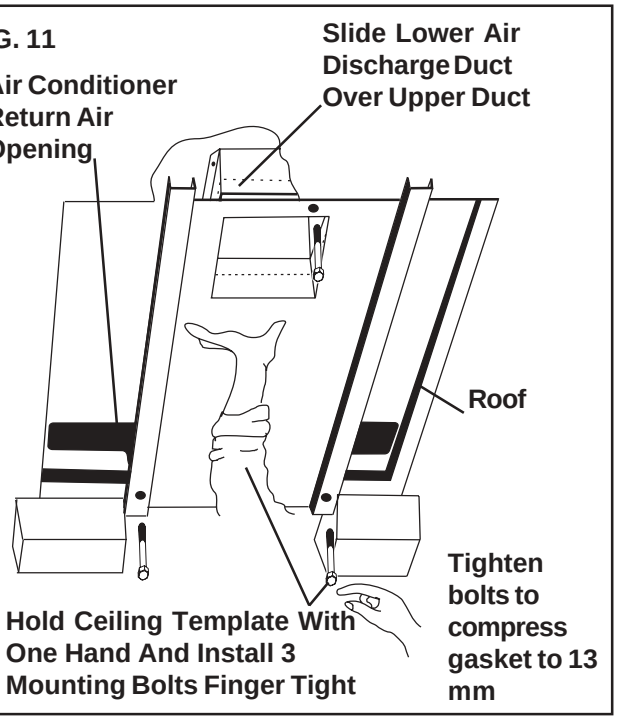
4. Use two (2) sharp pointed 1.0 cm long sheet metal screws to hold duct to base pan. Screw holes are provided in bottom of base pan for these screws.
5. Reach up into return air opening of the air conditioner and pull the unit electrical cord down for later connection.
6. Measure the ceiling to roof thickness:
   a. If distance is 5.0 cm, remove perforated tabs from both upper and lower ducts. See FIG. 10.
   b. If distance is 5.0cm -7.5cm, remove perforated tabs from bottom duct only. See FIG. 10.
   c. If distance is 7.5 cm - 10.0 cm, install ducts as received. See FIG. 10.

FIG. 10


Upper Discharge Air Duct
Step a Remove At Perforation
Step b Remove At Perforation
Step c Use As Packaged
Lower Discharge Air Duct

7. Install ceiling template by sliding lower duct over upper duct. See FIG. 11.

FIG. 11


Slide Lower Air Discharge Duct Over Upper Duct
Air Conditioner Return Air Opening
Roof
Tighten bolts to compress gasket to 13 mm
Hold Ceiling Template With One Hand And Install 3 Mounting Bolts Finger Tight

8. Hold the ceiling template with one hand and with the other, install the three mounting bolts through the template and into the base pan.
   a. Finger-tighten the bolts and check alignment. There should be an equal opening on each side and the rear flange must be tight against the roof opening.
   b. **EVENLY tighten the three bolts to a torque of 4.5 to 5.0 NM. This will compress the roof gasket to approximately 13 cm. The bolts are self locking so over tightening is not necessary.**

CAUTION

If bolts are left loose there may not be an adequate roof seal or if over tightened, damage may occur to the air conditioner base or ceiling template. Tighten to torque specifications listed in this manual.

G. Wiring The System

⚠ WARNING

Disconnect 220-240 volt AC. Failure to follow these instructions could create a shock hazard causing death or severe personal injury.

1. You may either wire direct into the junction box for a permanent connection or wire a molded plug into the junction box for a plug in connection.
   a. **If a Permanent Connection:** Route the power supply line, previously installed to the roof opening, into the junction box on the ceiling template. Connect as described below.
   b. **If a Plug In Connection:** Use the electric supply line, to power an electrical outlet installed, according to applicable laws, at the end of the roof opening farthermost from the junction box.

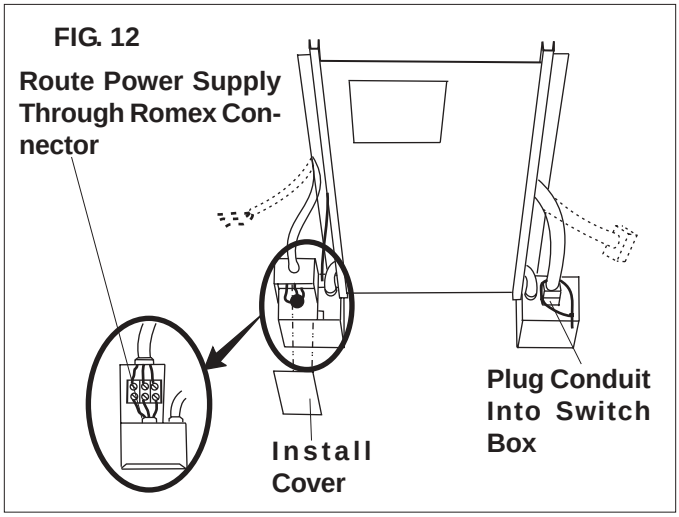
⚠ WARNING

Shock Hazard: Do not plug the molded cord in until you have completely installed the air conditioner and are ready for an operational check.

Note: If optional electric heater is part of this installation, now is the time to install it. Installation instructions are provided with the electric heater kit.

1. Route the molded plug set from the electric outlet into the junction box insuring not to coil excess wire so it will block air flow. Connect the plug set to the terminal block as described below.
2. Connect the power supply line to the air conditioner at the terminal block provided in the junction box. Connect red to red; black to black; and green to green or bare copper wire (P, P, and ⏚, respectfully). See Fig. 12.

FIG. 12

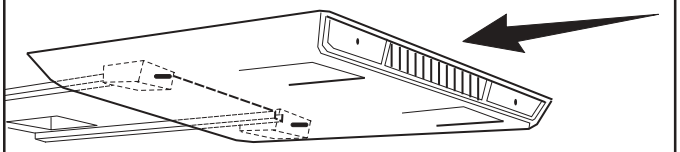


3. Tighten the strain relief onto the power supply line to hold it firmly in place being careful not to pinch the wires.
4. Carefully push all excess wire back into the junction box and install cover onto the box with two blunt pointed screws.

H. Air Distribution Box Installation

1. Remove the two return air grills and filters.
2. Slide the front end of the air box over the shafts of the thermostat and selector switch. See FIG. 13.

FIG. 13



Slide Air Box over Controls

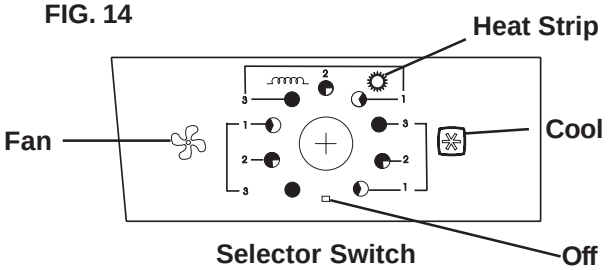
3. Install four screws through legs in air box into the pre-punched holes in the ceiling template.
4. Install the return air grills and filters by simply pushing them into place.
5. Install the two knobs provided on the ends of the thermostat and selector switch shafts.
6. The power supply to the air conditioner may now be turned **"ON".**
7. Your air conditioner is now installed and ready for operation. Please read the following instructions before attempting to run the unit.

OPERATING INSTRUCTIONS

A. Controls

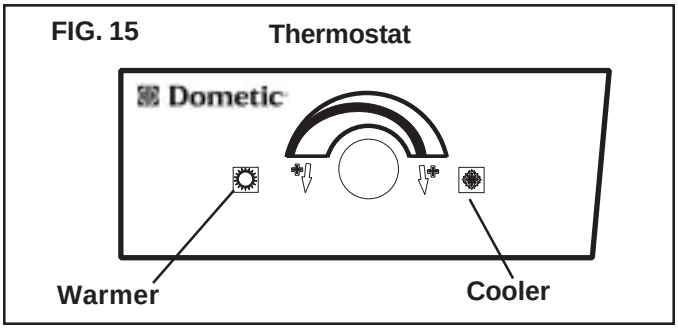
1. The Selector Switch has eight positions including **"OFF"**. This controls fan speed, heating mode, and cooling modes. See FIG. 14.

FIG. 14



2. The thermostat controls the compressor ON/OFF operation in cooling temperature range of 18° to 35°C. See FIG. 15.

FIG. 15 **Thermostat**



B. Cooling Operation

1. Set the thermostat at the desired temperature level.
2. Select the fan speed that best satisfies your needs:
   a. **HIGH COOL (3)**: Selected when maximum cooling and dehumidification required.
   b. **MED COOL (2)**: Selected when normal or average cooling required.
   c. **LOW COOL (1)**: Selected when room at desired comfort level and needs to be maintained. Normally this speed used for night time operation.

Note: The blower runs continuously to circulate air and maintain an even temperature. The compressor will come on as cooling is required to maintain the selected temperature level.

C. Fan Operation:

1. This will circulate the air in your Caravan without cooling or heating. There are three positions: **HIGH FAN (3), MED FAN (2) or LOW FAN (1)** to select from, depending upon personal choice. See FIG. 14.

D. Heating Operation: (With Optional Heat Kit Installed)

Note: This electric heater will not replace a furnace for heating your Caravan in cold weather. The intent is to remove the chill on cool days or mornings.

1. Turn the selector switch to **"OPT HEAT"**. See FIG. 14
2. The Heater will come on and begin heating. There are three positions: **HIGH HEAT (3), MED HEAT (2) or LOW HEAT (1)** to select from, depending upon personal choice. See FIG. 14.
3. When desired temperature level in Caravan is reached, the thermostat will cycle the electric heat strip on and off; the fan will continue to operate in the speed selected.
4. Move the selector switch to **"OFF"** or **"FAN"** position to stop operation of the electric heat strip.

Note: If the electric heat strip is not installed, the fan will operate in the same manner as in the **FAN** mode.

E. "OFF" Position

1. This is to turn Unit off.

G. Customer Maintenance

1. Periodically remove the return air filters located above the removable panels in the air box. Wash the filters with soap and warm water, let dry and then reinstall.

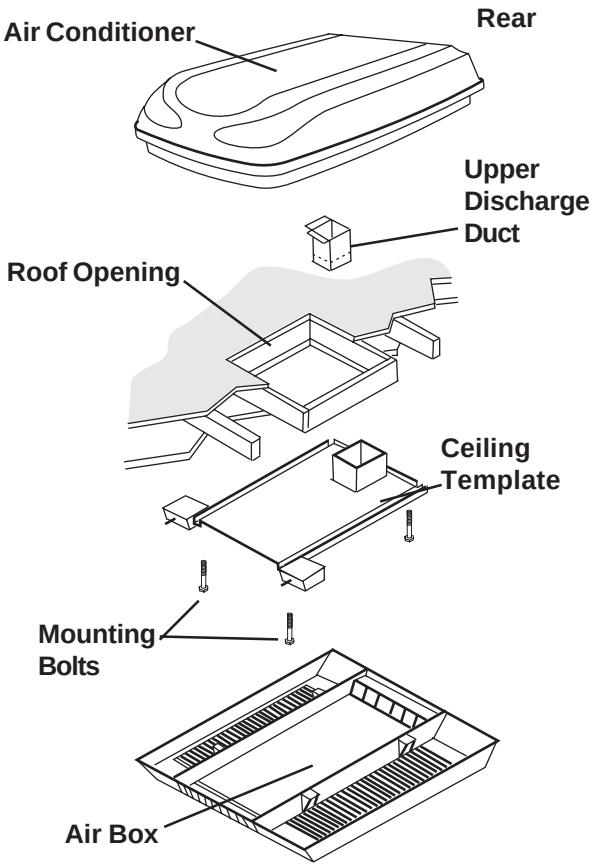
Note: Never run the air conditioner without return air filter in place. This may plug the unit evaporator coil with dirt and may substantially affect the performance of the unit.

2. Clean air box housing and control panel with a soft cloth dampened with a mild detergent. Never use furniture polish or scouring powders.
3. The blower motor is factory lubricated and requires no service under normal use.

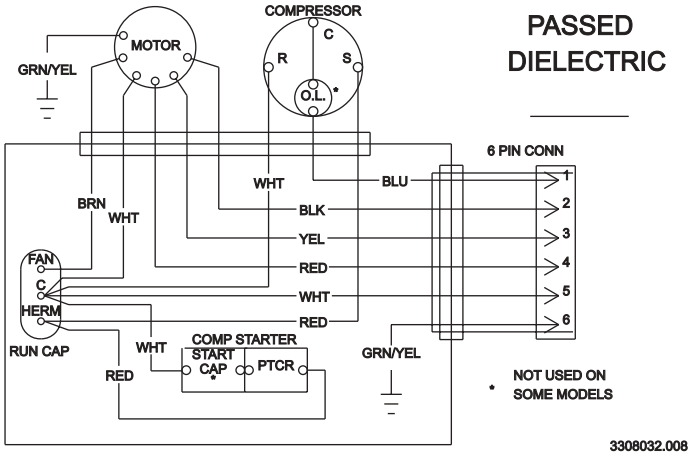
4. Under certain conditions, frost may form on the evaporator coil. If this should occur, inspect the filter and clean if dirty. Make sure air louvers are not obstructed. Air conditioners have a greater tendency to frost when the outside temperature is relatively low. This may be prevented by adjusting the thermostat control knob to a warmer setting (counter clockwise). Should frosting continue, operate on **LOW, MED**, or **HIGH FAN** only setting until the cooling coil is free of frost.
5. If your unit fails to operate or operated improperly, check the following before calling your service center.
   a. If Caravan connected to motor generator, check to be sure motor generator is running and producing power.
   b. If Caravan connected to power supply by a land line, check to be sure line is sized properly to run air conditioner load and it is plugged into power supply.
   c. Check your fuse or circuit breaker to see if it is open.
   d. After the above checks, call your local service center for further help. This unit must serviced by qualified service personnel only.
6. When calling for service, always give the following:
   a. Air Conditioner Model and Serial Number found on rating plate located on base pan of air conditioner bottom.
   b. Air Distribution Box Kit Part and Serial Number found on rating plate located on ceiling template. Observe this rating plate through the air box filter grill opening.

FIG. 16

Roof Mount Assembly



AIR CONDITIONER WIRING DIAGRAM



AIR BOX WIRING DIAGRAM